

April 21, 1942.

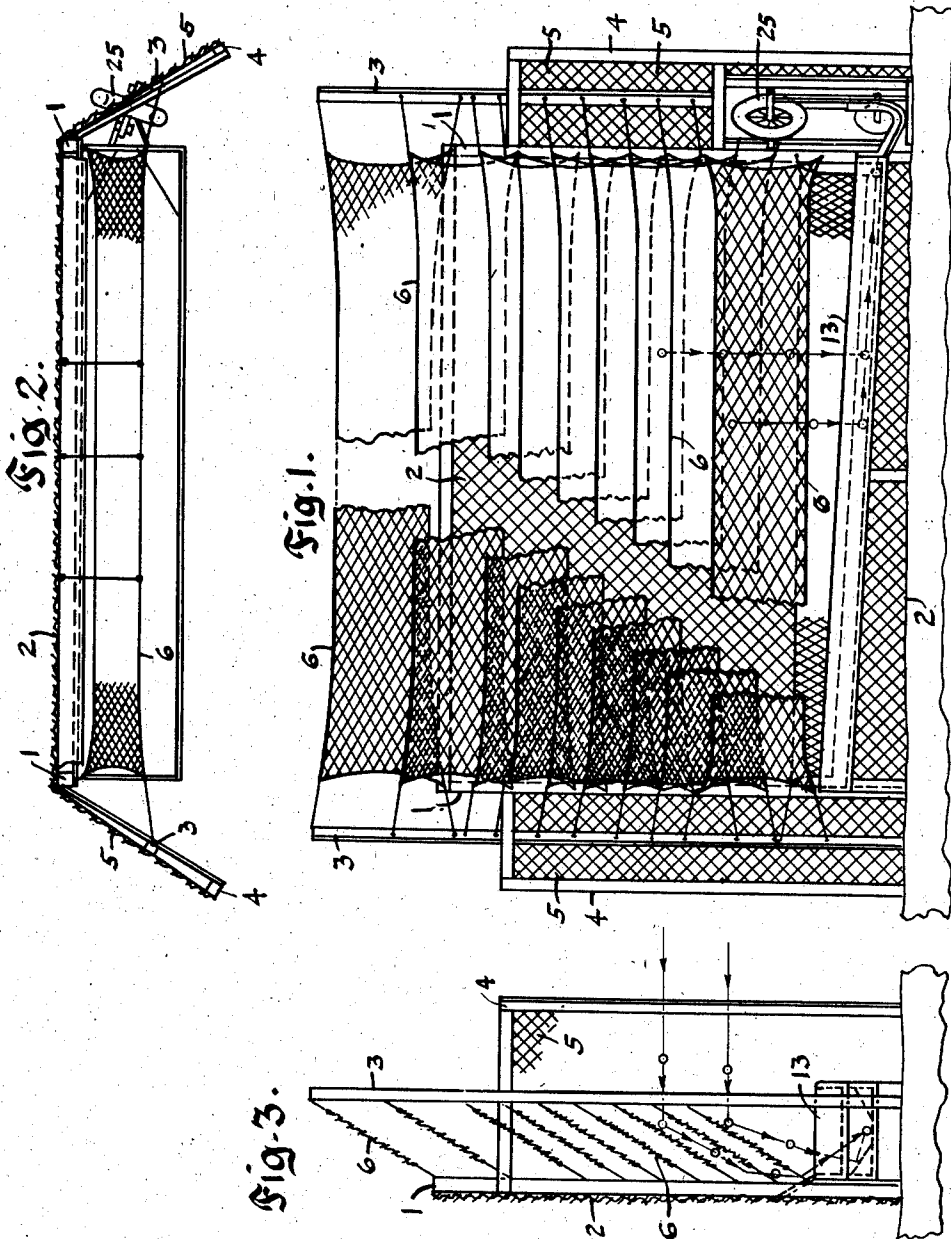
L. F. CLARK

2,280,376

MACHINE FOR PLAYING TENNIS OR THE LIKE

Filed Feb. 12, 1940

3 Sheets-Sheet 1



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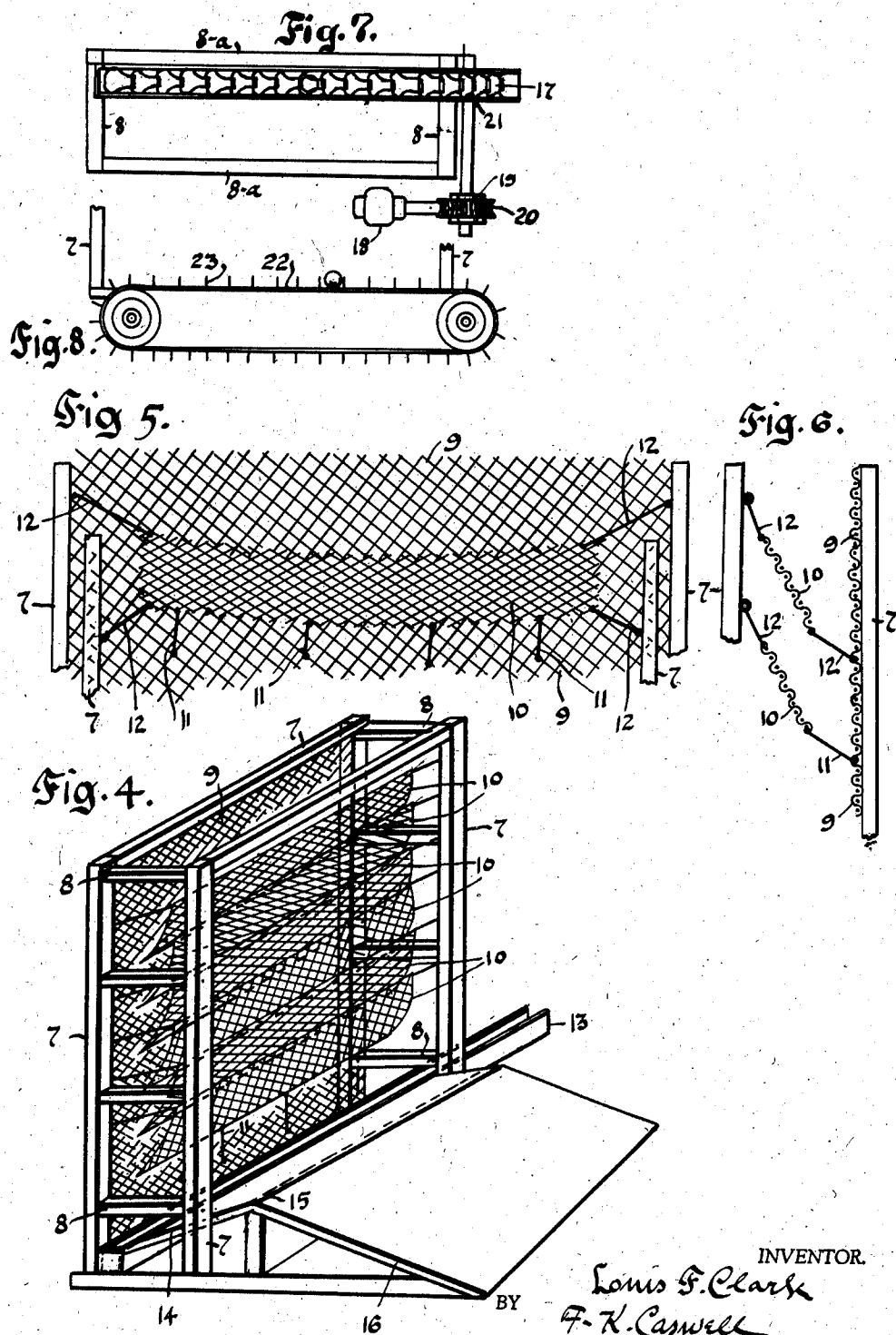
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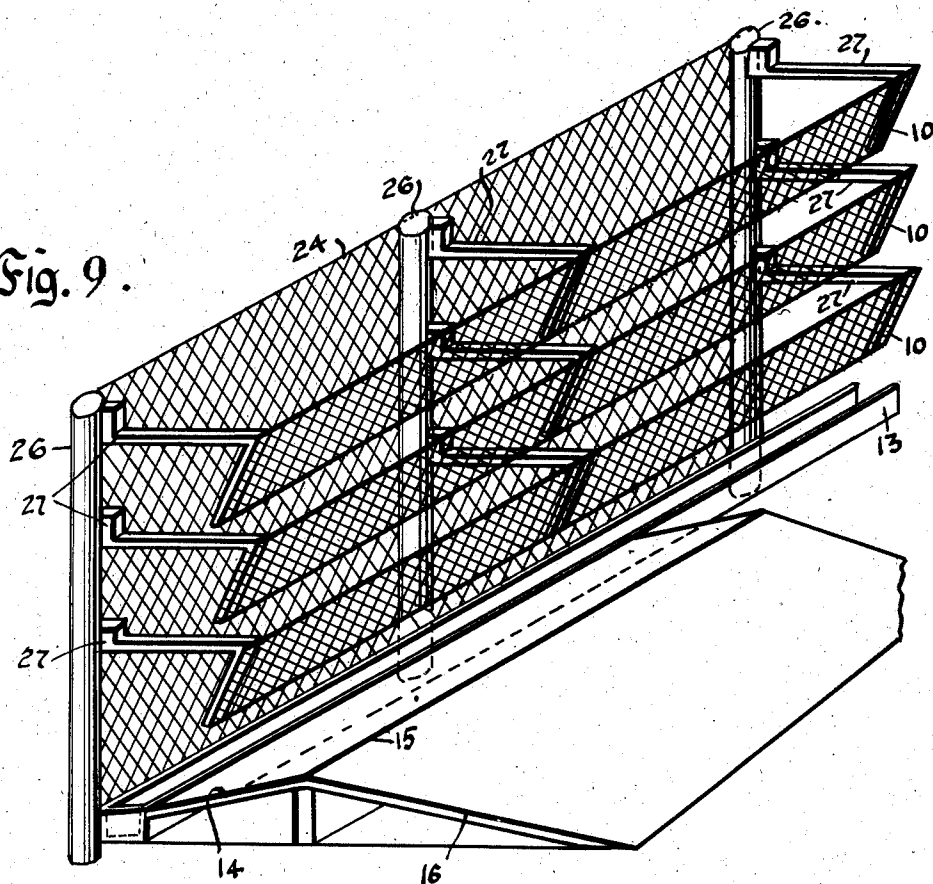
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Fig. 9.



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MACHINE FOR PLAYING TENNIS AND THE LIKE

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3 Claims. (Cl. 273—29)

My invention relates to that class of apparatus which is adapted to be used in connection with the game of tennis or other similar games, and particularly that class of amusement devices which are designed to arrest the ball batted or thrown by a player and to return the ball toward the player, thus eliminating the necessity of having more than one player. Other features of my invention not only provide for returning the ball toward the player, but returning the ball in various directions and heights, so that the player is provided with a mechanical device which will operate in a manner similar to the action of a human player.

This application is a continuation in part of my co-pending application, Serial No. 216,265, filed June 28, 1938, and includes a number of improvements in design and operation. The purposes of this improved type of apparatus are as follows: (1) To provide a means for eliminating any board, wall or curtain as the ball-stopping means. (2) To provide a new type of ball-retarding means consisting of a plurality of nets so disposed as to cause the ball thrown against them to be retarded and become trapped between them, lose its momentum and drop in an approximately vertical plane into a collector trough. (3) To provide for the transportation of the said ball to a ball-throwing machine, said means including an inclined trough or a conveyor in a trough adapted to deliver the ball to such ball-throwing machine. (4) To provide a combination of a demountable frame and nets so arranged that they can be quickly detached from each other and rolled or folded to facilitate transportation. (5) To provide a design and construction which will enable the inclined ball-retarding nets to be easily and quickly attached to a wire fence of the usual type.

I illustrate my invention by means of the accompanying drawings, in which: Figure 1 is a front elevation of a large type of my device and intended to be used in outdoor installations. This view shows the plurality of nets extending transversely across the device and the approximate location of the ball-throwing machine which is adapted to be used in connection therewith. Some of these nets are shown diagrammatically to avoid confusion. Figure 2 is a plan view of Figure 1. Figure 3 is an end view showing the nets diagrammatically. Figure 4 is an isometric view showing the inclined nets in a type of frame suitable for indoor as well as outdoor use, and also showing the trough and ramp which are used to carry the balls to the ball-throwing ma-

chine. Figure 5 is a detail view showing the back net and a single one of the inclined transverse nets, these being shown in a larger scale. Figure 6 is an end view showing a part of the frame and the inclined nets. Figure 7 is a plan view of the frame with the nets omitted and showing the ball-returning mechanism including a ramp and a conveyor adapted to be operated in the ball trough. Figure 8 is a sectional elevation through the trough showing a belt conveyor with cross-bars on the belt to make the movement of the ball more positive. Figure 9 is an isometric view of a somewhat different type of net and one which is adapted to be secured to a fence, this fence forming the back net, and having inclined net-holding brackets adapted to be attached to the posts of the said fence. These brackets have their extremities formed into downwardly and backwardly inclined surfaces suitable to receive and have attached thereto the inclined ball-retarding nets.

Similar numerals refer to similar parts in the several views.

The construction of my device is as follows: Referring to the design illustrated by Figures 1 to 3 inclusive; posts 1 are located at the back of the device and have mounted thereon a back netting extending from one post to the other and high enough to stop most of the balls that are likely to be thrown against it. Extending outwardly from the posts 1 are the wings comprising the posts 3 and 4 which are also covered by the netting 5. A series of overlapping nets 6 are provided, these nets being inclined in a downwardly and backwardly position, having their upper corners attached to the posts 3 and having their lower edges attached to the posts 1 and the back net 2. At the base of the frame adjacent to the posts 1 is located a trough 13 which is downwardly inclined towards one side of the device and having its lower end adjacent to a ball-throwing mechanism 25. This ball-throwing mechanism may be similar to that illustrated in my co-pending application Serial No. 216,265, filed June 28, 1938, or it may be a machine of other design and adapted to return the ball towards the player. The purpose of the plurality of nets in their inclined positions is to form traps which will retard the movement of a ball thrown or batted against the nets and to prevent it from bounding back onto the tennis court. The ball on striking the inclined nets is retarded in its motion and drops downwardly into the trough 13 whence it rolls into the ball-throwing mecha-

nism 25 and by which it is thrown toward the player.

The design shown in Figures 4, 5 and 6 is similar but is especially adapted for use indoors but of course is not limited to indoor use. This design is provided with a frame consisting of the posts 7 and suitable longitudinal and cross members such as 8 and 8a. Secured to the back of the frame is a ball-stopping net 9. Located in front of the net 9 are a plurality of transverse ball-retarding nets 10 which have their ends attached to the posts 7 by the cords 12 and their lower portions attached to the ball-stopping net 9 by means of the cords 11. The nets 10 are so mounted that they are inclined downwardly and backwardly and overlap each other so that a ball striking one of these nets has its momentum retarded and as it falls it strikes the next net below and finally falls to the bottom of the frame. At the bottom of the frame and adjacent to the back is a trough 13, leading to the ball-throwing machine 25. Adjacent to the front of the trough 13 is a ramp 14 which extends outwardly and upwardly to a point as at 15 somewhat in front of the frame, so that any ball that might fall outwardly would be caught by this ramp and returned to the trough 13. From the high point 15 another ramp 16 is attached so that a ball thrown with insufficient force and failing to reach the nets will drop on this ramp and be led into the trough 13. It will be noted that there is a space left between the lower edge of each of the ball-retarding nets 10 and the back net 9, through which the ball can drop downwardly to the trough 13. The trough 13 may be inclined toward the ball-throwing machine 25, or it may be provided with a conveyor such as is shown in Figures 7 and 8. In Figure 7 a chain 17 is used, the same being driven by the motor 18, the worm 19, the worm-wheel 20 and the sprocket 21. In the conveyor shown in Figure 8, an endless belt 22 is used. It is provided with cross-bars 23 located at intervals and which are designed to provide a positive movement of the ball toward the ball-throwing machine 25. This belt may be driven by the motor and associated parts as shown in Figure 7, or other convenient means may be used. Various alternate means may be used instead of the inclined ball-retarding nets, for example:

The type shown in Figure 10 is intended to be used in outdoor play and particularly in such cases as where a wire fence of the usual type is available. This design has a ball-stopping net 24 secured to the fence posts 26, or the fence itself may be used if already constructed. Adapted to be secured to the posts 26 by bolting or by other convenient means, are the brackets 27 which extend outwardly and then downwardly from the posts; the downwardly extending portion 28 of the brackets 27 are also backwardly inclined. Attached to the brackets 27 by any convenient means, but preferably by a means which will permit of rapid assembly, are the ball-retarding nets 10. Located adjacent to the ball-stopping net 24 and near the base of the device is the trough 13, which may be provided with a conveyor of the types shown in Figures 7 and 8,

the purpose in either case being to receive the balls which have been stopped and convey them to the ball-throwing machine 25. Extending from the top of the trough 13 to a point in front of the nets are ramps 14 and 16, for the purpose of returning any stray balls to the said trough. This design is particularly suitable in cases where it is desirable to quickly assemble or remove the equipment.

All of the types and variations of my device are intended to provide a means whereby a ball batted or thrown by a player is first retarded in its motion, then stopped and transported into a ball-throwing machine which returns the ball toward the player.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a device of the class described, having a ball-stopping back and a frame provided with network means for first retarding and then changing the direction of movement of a ball thrown toward said network means including a plurality of ball-retarding nets horizontally secured in said frame, said ball-retarding nets being downwardly and rearwardly inclined, the upper portion of each of said nets overlapping the lower portion of the net next above, spaced from each other and from said ball-stopping back and adapted to reduce the speed of the ball striking the said nets and cause it to fall vertically behind the said inclined nets and between them and the said back-stop downwardly to the base of the frame.

2. In a device of the class described, having a ball-stopping back and a frame with posts provided with network means for first retarding and then changing the direction of movement of a ball thrown toward said network, the combination of a plurality of brackets adapted to be removably attached to the posts of said frame, said brackets being extended outwardly from said posts and thence extended downwardly and rearwardly and provided with a plurality of nets longitudinally disposed and adapted to be removably attached to said brackets, each of said nets when so attached being held in a position downwardly and rearwardly inclined, each net overlapping the lower portion of the net next above, and being spaced from each other and from said ball-stopping back and adapted to reduce the speed of a ball striking the said nets and cause the said ball to fall in an approximately vertical direction.

3. In a device of the class described, having fence posts and a fence attached thereto, the combination of a plurality of brackets adapted to be attached to the posts of said fence, said brackets being extended outwardly from said posts and thence extended downwardly and rearwardly and provided with a plurality of nets longitudinally disposed and adapted to be readily attached to or detached from said brackets, each of said nets when so attached, being held in a position downwardly and rearwardly inclined, and each net overlapping the lower portion of the net next above it, being adapted to reduce the speed of a ball striking said nets and cause it to be trapped and fall in a vertical direction.

LOUIS F. CLARK.